Operator	Gate (in a circuit)	Matrix
Pauli-X (X)	X	$\left(\begin{array}{cc} 0 & 1 \\ 1 & 0 \end{array}\right)$
Pauli-Y ( $Y$ )	Y	$\left(egin{array}{cc} 0 & -i \ i & 0 \end{array} ight)$
Pauli-Z ( $Z$ )	Z	$\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$
Hadamard ( $H$ )	— Н	$\frac{1}{\sqrt{2}} \begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$
Phase ( $S$ )	S	$\left(egin{array}{cc} 1 & 0 \ 0 & i \end{array} ight)$
$\boldsymbol{\pi}$ / $\boldsymbol{8}$ ( $T$ )	T	$\left(egin{array}{cc} 1 & 0 \ 0 & e^{i\pi/4} \end{array} ight)$
Controlled Not (CNOT, CX)		$ \left(\begin{array}{cccc} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{array}\right) $
Controlled $\mathbf{Z}$ ( $CZ$ )		$ \begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & -1 \end{pmatrix} $
Toffoli ( CCX )		$\begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0$